The
Institution of Engineers,
Australia

Western Australia Division

East - West Telegraph

National Engineering Landmark
Commemorative Plaque
Unveiling Ceremony

Esperance - Western Australia
Wednesday, 28 November 2001

Albany - Western Australia
Saturday, 8 December 2001

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WA Division

Program - *Esperance*
Wednesday, 28 November 2001

Welcome

Mr Bruce James OAM Hon FIEAust CPEng
Chairman, Engineering Heritage Panel
WA Division
Institution of Engineers, Australia

Unveiling of the National Engineering Landmark

Cr Julie Starcevich
Shire President, Shire of Esperance

Presentation of the National Engineering Landmark

Professor Peter Lee FIEAust CPEng
President, WA Division
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Acceptance of the National Engineering Landmark

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Refreshments

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The East-West Telegraph
National Engineering Landmark

THE TELEGRAPH IN AUSTRALIA : THE QUIET REVOLUTION

The telegraph and the steam engine were the two inventions which had the most profound effects on nineteenth century communications. Of the two, it was the telegraph, now overshadowed by the later more powerful technologies of telephone and radio, which had the greater impact on Australian society, business and government. It was the telegraph which reduced communication times between the Australian colonies from weeks to minutes, and between London and the colonies from months to hours. It was this revolution in communications which paved the way for the increased commercial and political ties between the Australian colonies which led to Federation, and it was the telegraph which facilitated the expansion of international trade in Australian commodities and British investment in the Australian mineral boom of the 1880s and 1890s.

The completion of the East-West Telegraph in 1877 provided Western Australia with the vital communications link with the eastern colonies, and through the Overland Telegraph from Port Augusta to Darwin, which had been completed only five years earlier, to the rest of the world.

By any standards the construction of nearly 2,500 kilometres of telegraph line from Port Augusta to Albany along a coastline, most of which was virtually unknown, and which was subject to notoriously rough seas, was an epic undertaking. One third of the Western Australian section had no European inhabitants and in the remainder there were only very scattered pastoral settlements. For Western Australia, the least advanced of the Australian colonies, with a population of less than 25,000, the project was by far the most ambitious public work the colony had ever attempted.

LINKING AUSTRALIA TO THE WORLD

Western Australia was the last of the Australian colonies to adopt the telegraph. In the eastern colonies, a telegraph network had been developed with remarkable speed under government sponsorship. Within a decade of the opening of the first line from Melbourne to Williamstown, in 1854, all the eastern mainland capitals had been connected. In Western Australia, it was left to a private company, the Western Australian Telegraph Company, to open the first telegraph line, from Perth to Fremantle, in 1869. Technical advice for the line and its supervision was provided by James C. Fleming. Fleming had a progressive vision of how the colony could be served by the telegraph and in the same year prepared a plan for the extension of the telegraph system to all settled areas in the colony based on a line from Perth to Albany. Fleming's plan was endorsed by Governor Weld. To implement it, Fleming formed a company, the Electro-Magnetic Telegraph Co (EMT Co.) which took over the earlier Western Australian Telegraph Company and completed the Perth to Albany line in December 1872.

Under its agreement with the Government, the EMT Co. owned and erected the poles and lines and supplied the telegraph equipment, while the Post Office operated the service and provided both staff and buildings. The British Colonial Office, however, did not approve of such a joint private and public system, and, in 1873, the Western Australian Government bought out the EMT Co., and Fleming became the first Western Australian Government Superintendent of Telegraphs.

A telegraph line along the coast from South Australia (Port Augusta) to Albany had been first proposed by Charles Todd, the South Australian Superintendent of Telegraphs in 1860. The line was intended to meet up with a submarine cable from Ceylon to King George Sound, one of several schemes proposed by British companies for connecting the Australian colonies to the cable systems linking India to London. However, Todd considered such long submarine cables to be 'risky' and proposed instead an overland line from Port Augusta to Darwin to join a short submarine cable to Java. After a construction time of only two years, the Overland Telegraph was open to traffic in August 1872.

A year after the Overland Telegraph had connected the eastern colonies to Europe, Fleming submitted a proposal to Governor Weld for the construction of a telegraph line from Albany to Eucla on the South Australian border. In the following month, September 1873, the Western Australian Colonial Secretary wrote to the South Australian Government requesting reciprocal action by South Australia in the construction of a line from Port Augusta to Eucla. The proposal had the enthusiastic support of Todd who considered the work to be 'a national obligation which our geographical position compels us to fulfil'. In the following year, both the South Australian and Western Australian legislatures passed bills permitting the work to proceed.

CONSTRUCTING THE EAST-WEST TELEGRAPH

Fleming had recommended a preliminary survey along the proposed coastal route of the telegraph, in order to locate at least twelve safe landing places where the poles and other equipment could be landed. However, John Forrest, then Deputy Surveyor General, advised that a preliminary survey was unnecessary. He considered that sufficient information had been gained by him on his 1870 expedition across the Nullarbor to guide the contractors, despite its limited information on coastal conditions.

Initially, the Western Australian works were divided into three contracts:

- supply and shipment of jarrah poles, route clearance and pole erection
- supply and erection of wire, insulators and saddles
- shipping and erection of five pre-fabricated telegraph stations.

Tenders for the works closed on 25 August 1874. Three of the colony's leading merchants were the main tenderers, but their prices were all substantially above Fleming's estimates, so the work had to be rearranged. The Government purchased the wire, insulators and fittings directly from the London suppliers. Fleming negotiated a price for the shipping of the wire and fittings and the wiring works with the only contractor who had initially tendered purely for the wiring contract, a young builder, William Elsgood. A contract was signed with Elswood in November 1874.

Tenders were recalled for the building and poling works, the latter being divided into three parts. These tenders closed on 2 December 1874. The contract for the supply of the poles went to William Spencer of Bunbury who subcontracted the work to two steam mills at Lockeville and Quindalup, both near Busselton. The shipping contract was awarded to an experienced coastal navigator, Captain W.W. Miles. The contract for clearing the route, carting the poles from the landing places and erecting them, went to the only tenderer for the work, James G. Flindell, a rural contractor from Toodyay. Elsgood, the wiring contractor, was also awarded the contract for the shipping and erection of the prefabricated station buildings.

Governor Weld planted the first pole of the line in Albany on 1 January 1875 but work on the line did not commence until April 1875. The first eighty kilometres of the line were to prove the most difficult country to negotiate on the whole of the Western Australian section, due to heavy timber, undulating terrain and numerous watercourses. As there was no prior survey, Fleming and Jonathan Parish, a departmental foreman, reconnoitered the country 15 to 30 kilometres ahead of Flindell's party and pegged the route. It was not until it was poled nearly as far as the first telegraph repeater station at Bremer Bay, 220 kilometres from Albany, that Fleming was eventually provided with two government surveyors, who pegged the rest of the route, allowing Fleming to sail with the shipping contractor to determine suitable landing places for the poles and equipment.

The rafting ashore of the poles through the surf on the open coast east of Israelite Bay was a hazardous operation. One boatman was drowned in the surf and Fleming only narrowly escaped drowning at another landing. The unpredictable nature of the south coast seas and weather took its toll on the contractors' small sailing schooners. At least three of the supply vessels became total wrecks after being caught in unfavourable locations by gale force winds. Weather conditions, and also a labour shortage at the sawmills, delayed the delivery of all poles from May 1876 onwards. To maintain progress east of Culham Inlet Fleming permitted the contractor to erect only half the poles on the eastward journey and to complete the work on the return trip.

The bulk of the work in the poling contract consisted of hauling materials from the landing places on the coast and distributing them along the route. Much of this work involved the laborious making of cart tracks through dense coastal scrub. Most of the hauling of materials was done by horse-drawn wagons but east of Point Culver on the Nullarbor Plain, where 60 metre high

cliffs rise out of the ocean, a derrick had to be built to lift the poles and other equipment to the top of the cliffs. The absence of water supplies along the 260 kilometres from Eyre to Eucla was overcome by using portable sea water condensers mounted on wagons.

The last section of the South Australian route from Fowlers Bay to Eucla was completed in July 1877. The gap between Eucla and the end of the Western Australian line was then crossed by a dispatch rider who operated for five months until early December 1877. The completion of the line, (8 December 1877), was recorded in the Perth Office diary of the Western Australian Posts and Telegraph Department by the brief entry:
"Saturday, 7 p.m. Eucla line opened. Hurrah!"
Eucla Telegraph Operations

The Eucla telegraph station was operated by both colonies as a border facility with two separate station masters and two distinct staffs. The two systems had different types of equipment and even used different telegraph codes. The two sets of telegraphists sat opposite each other separated by a partition. Each operator decoded incoming messages, wrote them out and passed them through the partition for his opposite number to retransmit. The transmission rates of Eucla telegraphists were legendary. During the London boom in Western Australian gold mining shares, in 1895-97, they had to work three shifts a day to keep the backlog of telegrams at bay.

TECHNICAL DETAILS

Albany - Eucla

Line length: 1 207 kilometres

Poles: 18 300 jarrah poles spaced at 14 per kilometre; each 5.2 m long, sawn 100 mm square; set a minimum of 1.1 m into the ground

Wire: single, galvanised, 400 lb per mile, 'charcoal iron' wire

Pole attachment: Siemens 'double bell' insulator fixed to a saddle plate on the top of the pole

Repeater stations: Bremer Bay, Esperance, Israelite Bay, Eyre

Border station: Eucla

Eucla - Port Augusta

Line length: 1 221 kilometres

Poles: 12 474 Oppenheimer galvanised iron poles spaced at 10 per Kilometre

Repeater stations: Smoky Bay, Fowlers Bay, Streaky Bay, Port Lincoln

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